FX-TURBO Evaluation, Repair & Redesign

Turboexpander-Generator

Application:
Geothermal Power Generation

Location:
Nevada, USA

Challenge:
Undetermined source and excessive leakage of oil into process piping of non-LAT turboexpander-generator unit.

Specifications:
Inlet Pressure: 455 PSIA
Inlet Temperature: 261° F
Flow Rate: Isobutane 1.6M LB/HR
Power: 11 MW
Case Study: Turboexpander-Generator

Challenge:
Six turboexpander-generator units were experiencing excessive leakage of oil from an undetermined location into the process piping of a non-LAT unit. The seal oil leak rate to the seal oil drain tank was almost 10x the design amount. The leakage required additional and ongoing tank drainage, treatment process handling and plant labor.

Solution:
LAT’s engineering evaluation revealed the need for a new seal design. Leakage levels were controlled following the installation of the newly designed seal replacement part.

Result:
The new seal design is meeting and exceeding performance levels. Acceptable leakage levels on the process side seal are less than the customer-stipulated requirements and less than the guaranteed supplier leakage values.